

**ABSTRACT**

The present invention relates to devices and methods for performing an array of chemical reactions. The device includes a substrate having an array of microwells. Each microwell within the array includes a porous region defined in the first side and extending partially through the substrate. The porous region is formed by the selective removal of a substrate constituent, such that the porous region is defined by a continuous portion of the substrate. A wide range of functional groups, sample molecules, and chemical moieties that can be easily introduced into the described microwells and immobilized therein, particularly onto the porous region of the substrate, therefore the devices of the present invention are useful as supports for the synthesis of compounds, such as biomolecules, and for a range of methods involving chemical reactions and assays.